

REMARKS

Applicants respectfully request entry of the amendments and remarks submitted herein. Claims 1 and 5 have been amended herein, and claims 2-4 and 9 have been canceled without prejudice to continued prosecution. Certain of the amendments to claims 1 and 5 are to put those claims in the proper format; support for the other amendments to claims 1 and 5 can be found, for example, in the original dependent claims.

Claims 1, 5, 6-8, 10 and 11 are currently pending. Reconsideration of the pending application is respectfully requested.

The 35 U.S.C. §102 Rejections

Claims 1-5 and 8-11 stand rejected under 35 U.S.C. §102(b) as being anticipated by Leleu et al. (US Patent No. 6,344,591). According to the Examiner, Leleu teaches a method for preparing maltitol products that includes the claimed steps. This rejection is respectfully traversed.

Leleu et al. discloses that either or both bipyramidal maltitol crystals or prismatic maltitol crystals can be produced by controlling the amount of maltotriitol content in a maltitol syrup that is being crystallized (column 1, lines 63-67). Leleu et al. discloses that the process involves liquefaction, saccharification and crystallization, and Leleu et al. further discloses that, prior to crystallization, the maltitol syrup can be chromatographically fractionated (column 6, lines 49), concentrated (column 6, lines 61), or hydrolyzed (column 6, lines 66). Applicants note that the pending claims require that the steps be performed in the particular order in which they are recited. Leleu et al. discloses many different alternatives, but Leleu et al. does not disclose the specific “successive” steps that are recited in the pending claims.

Contrary to the Examiner's assertions, Leleu et al. does not teach each and every element of the claimed process and, therefore, Leleu et al. does not anticipate the pending claims. Accordingly, and in view of the amendments and remarks herein, Applicants respectfully request that the rejection of claims 1-5 and 8-11 under 35 U.S.C. §102(b) be withdrawn.

The 35 U.S.C. §103 Rejections

Claims 6 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Leleu et al. in view of Fouache et al. (US Patent No. 6,284,498). According to the Examiner, Leleu et al. does not disclose chromatographic fractionation of liquid maltitol to obtain a maltitol-enriched fraction, but Fouache et al. discloses recycling the mother liquor of a maltitol crystallization process in order to recover the maltitol from the mother liquor. This rejection is respectfully traversed.

As indicated herein, Leleu et al. relates to particular types of maltitol crystals and the process for their preparation. According to Leleu et al., the maltotriitol content is crucial for obtaining the expected types of crystalline maltitol (column 3, line 54 and column 5, lines 53-54). Leleu et al. further provides a description of generic liquefaction and saccharification processes (column 5, line 46) and also refers, in the alternative, to a number of different processes including, for example, molecular sieving, nanofiltration, catalytic hydrogenation, chromatographic fractionation, concentration, crystallization, and enzymatic hydrolysis (see, for example, column 5, line 55 - column 7, line 14). Fouache et al. is directed toward a method of manufacturing a maltose-rich syrup by saccharifying liquefied milk starch first with an alpha-amylase and second with a beta-amylase (column 1, lines 58-64). Fouache et al. also describes recycling the enriched maltitol fraction upstream of the crystallization stage (column 7, lines 15-16).

The combination of references cited by the Examiner teach processes that use maltitol syrups to obtain efficient amounts of crystalline maltitol. The outcome of the processes described in both of the references cited by the Examiner is always crystalline maltitol. There is no disclosure in either reference of the use of maltitol syrup for anything other than crystallized maltitol. The pending claims, however, are directed toward obtaining solidified maltitol (fraction (B)) and liquefied maltitol (fraction (C)) in a single process, where the solidified maltitol fraction and the liquefied maltitol fraction contain particular amounts of maltitol (based on dry substance). The same process can be used to obtain, in addition to solidified maltitol and liquefied maltitol, high purity crystalline maltitol (fraction (D) or (F)). On the other hand, the cited references would not prompt a person of ordinary skill in the art to use maltitol syrup for anything other than crystallization. In fact, the combination of cited references teaches that all

available maltitol should be crystallized, which essentially teaches away from the present claims directed toward obtaining several different forms of maltitol (solidified, liquefied, and crystallized) in a single process.

The cited references disclose obtaining crystalline maltitol with high purity but at a rather low recovery. On the other hand, the claimed process not only allows one to obtain different grades of maltitol (i.e. solidified, liquefied, and crystalline), but also results in high yields of highly pure maltitol. Significantly, the present disclosure demonstrates that high yields of highly pure maltose in different forms can be obtained by performing the particularly recited steps. In addition, the liquid co-product (E) can be further fractionated to obtain a fraction (G) rich in maltitol (dependent claim 6), which further can be combined with other fractions to obtain a liquid maltitol product (H) containing at least 94% maltitol (dependent claim 7). The claimed process allows one to obtain high yields of highly pure crystalline maltitol, slightly less pure solidified maltitol, and liquid maltitol containing very high levels (at least 94%) of maltitol.

The cited references, alone or in combination, do not disclose or even suggest Applicants' claimed process. In view of the amendments and remarks herein, Applicants respectfully request that the rejection of claims 6 and 7 under 35 U.S.C. §103(a) be withdrawn.

CONCLUSION

Applicants respectfully request allowance of claims 1, 5, 6-8, 10 and 11. If a telephone call to the undersigned would expedite prosecution, the Examiner is encouraged to do so. Please apply any charges or credits to Deposit Account No. 06-1050.

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Page : 7 of 7

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Respectfully submitted,

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